Notice of Allowability	Application No.	Applicant(s)	
	09/992,304	SICKINGER ET AL.	
	Examiner	Art Unit	
	Brian R. Gordon	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11-10-04*.

2. ☒ The allowed claim(s) is/are *1-3, 6, 8, 10, 12, 21-23, 25, 27-28, 30-34, 36*.

3. ☒ The drawings filed on *19 November 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Eric Moran on January 20, 2005.

The application has been amended as follows:

AMENDMENTS TO THE CLAIMS

Amendments to claims 1, 2, 21, 30, 31, and 36 were agreed upon as follows:

1. (currently amended) A system for aspirating and/or dispensing of liquid samples that comprises a microejection device and a pump, which are connected with one another via tubing, wherein the pump is accomplished as a piston pump comprising a pump cylinder, a pump piston, and a pump drive, and wherein this system comprises a computer that is capable of being loaded with an activatable computer program product for synchronizing operation of the microejection device and the pump,
wherein the system carries ~~can carry~~ out the following functions because of the computer program product loaded and activated into the computer to control and synchronize the system:
   a) to actively define sample volumes until a maximum under-pressure is reached in the tubing, using only the microejection device, which is filled with sample liquid;
   b) dispense the sample volumes defined in (a) using only the microejection device, which is filled with sample liquid; and

c) to track the piston of the pump that conveys liquid about a tracking value ~~volume~~ that is dependent on the sample volume, which is defined in (a) and is actively dispensed only by the microejection device in (b); wherein said tracking value is maximized at an error volume ~~which tracking volume may deviate from the sample volume by an amount comprising a residual volume~~.

2. (currently amended) The system according to Claim 1, wherein the maximum under-pressure in the tubing as defined in (a) corresponds to an error volume of 100 nL, and wherein a residual volume is smaller than 100 nL ~~the residual volume as defined in (c) is smaller than 100 nL~~.

3. (previously presented) The system according to Claim 1 or 2, wherein the computer is integrated into the system as an electronic component that can also be externally operated and read out can be obtained therefrom.

Claims 4-5 (cancelled).

6. (previously presented) The system according to Claim 1 or 2, wherein the microejection device comprises an endpiece that is a microejection pump.

7. (cancelled)

8. (previously presented) The system according to Claim 1 or 2, wherein the microejection device is a piezoelectric micropump.

9. (cancelled)

10. (previously presented) The system according to Claim 1 or 2, wherein the microejection device further comprises an endpiece that is a disposable pipette tip, a pulse generator, and tubing connecting the endpiece and pulse generator.

11. (cancelled)

12. (previously presented) The system according to Claim 1 or 2, further comprising a reservoir, a three-way valve, or a reservoir and a three-way valve, with the three-way valve located between the pump and the reservoir, and the reservoir, the three-way valve and the pump being connected with one another by tubing.

Claims 13-20 (cancelled).

21. (currently amended) A method for synchronizing a system for aspirating and/or dispensing liquid samples, wherein the system comprises a microejection device and a pump connected with one another by tubing, wherein the pump is accomplished as a piston pump comprising a pump cylinder, a pump piston, and a pump drive, and wherein the system further comprises a computer that includes a loaded ~~is capable of loading an~~ activatable computer program product that synchronizes the microejection device and the pump,
wherein the loaded and activated computer program product directs the computer to control and synchronize the system, the method comprising:

a) actively defining sample volumes until a maximum under-pressure is reached in the tubing, using only the microejection device, which is filled with sample liquid;

b) dispensing the sample volumes defined in (a) using only the microejection device, which is filled with sample liquid; and

c) tracking the piston of the pump that conveys liquid about a tracking value ~~volume~~ that is dependent on the sample volume, which is defined in (a) and is actively dispensed only by the microejection device in (b); wherein said tracking value is maximized at an error volume ~~which tracking volume may deviate from the sample volume by an amount comprising a residual volume~~.

22. (previously presented) The method according to Claim 21 or 36, wherein dispensing of the sample volume occurs in volume-defined partial steps.

23. (previously presented) The method according to Claim 21 or 36, wherein tracking of the piston of the pump occurs continuously or in partial steps.

24. (cancelled)

25. (currently amended) The method according to Claim 21 or 36, wherein tracking of the piston of the pump occurs in partial steps, said ~~the~~ partial steps ~~for tracking of the piston of the pump~~ are collected into series of steps, with a series of steps always comprising the same number of partial steps.

26. (cancelled)

27. (previously presented) The method according to claim 21 or 36, wherein the beginning or the end of the tracking of the piston of the pump occurs with a time shift relative to the beginning or the end of dispensing of the sample volume.

28. (previously presented) The method according to claim 21 or 36, wherein, where a residual volume occurs due to the dispensing of the sample volume and the tracking of the piston of the pump in partial steps, dispensing and tracking are adjusted to one another so that this residual volume is always borne by the tracking of the piston of the pump.

29. (cancelled)

30. (currently amended) The method according to Claim 21 or 36, wherein a value corresponding to a ~~the~~ residual volume is stored in the computer and is taken into account in dispensing samples following occurrence of the residual volume.

31. (currently amended) A computer program product for synchronizing a system for aspirating and/or dispensing liquid samples, wherein the system comprises a microejection device and a pump that are connected with one another by tubing, wherein the pump is accomplished as a piston pump comprising a pump cylinder, a pump piston and a pump drive, and wherein the system further comprises a computer wherein the computer is capable of being loaded with activatable computer program product for synchronizing operation of the microejection device and the pump, and wherein this computer program product, in its activated state, enables the computer to control and synchronize the system:

a) to actively define sample volumes until a maximum under-pressure is reached in the tubing, using only the microejection device, which is filled with sample liquid;

b) dispense the sample volumes defined in (a) using only the microejection device, which is filled with sample liquid; and

c) to track the piston of the pump that conveys the liquid about a tracking value ~~volume~~ that is dependent on the sample volume, which is defined in (a) and is actively dispensed only by the microejection device in (b) wherein said tracking value is maximized at an error volume ~~which tracking volume may deviate from the sample volume by an amount comprising a residual volume~~.

32. (previously presented) The computer program product according to Claim 31, further comprising commands for controlling a three-way valve, connected upstream from the pump.

33. (previously presented) The computer program product according to Claim 31 or 32, further comprising commands for controlling the pump for the aspiration of a liquid.

34. (previously presented) The method of Claim 25, wherein the number of partial steps is 8 steps.

35. (cancelled)

36. (currently amended) The method according to Claim 21, wherein the maximum under-pressure in the tubing as defined in (a) corresponds to an error volume of 100 nL, and wherein a residual volume is smaller than 100 nL ~~the residual volume as defined in (c) is smaller than 100 nL~~.

Allowable Subject Matter

2. Claims and 1-3, 6, 8, 10, 12, 21-23, 25, 27-28, 30-34, and 36 are allowed.

3. The following is an examiner's statement of reasons for allowance: The prior art of record does not teach nor fairly suggest a computer program product for synchronizing a system for aspirating and/or dispensing liquid samples, wherein the system comprises a microejection device and a pump that are connected with one another by tubing, wherein the pump is accomplished as a piston pump comprising a pump cylinder, a pump piston and a pump drive, and wherein the system further comprises a computer wherein the computer is capable of being loaded with activatable computer program product for synchronizing operation of the microejection device and the pump, and wherein this computer program product, in its activated state, enables the computer to control and synchronize the system: to actively define sample volumes

until a maximum under-pressure is reached in the tubing, using only the microejection device, which is filled with sample liquid; dispense the sample volumes defined in (a) using only the microejection device, which is filled with sample liquid; and to track the piston of the pump that conveys the liquid about a tracking value that is dependent on the sample volume, which is defined in (a) and is actively dispensed only by the microejection device in (b) wherein said tracking value is maximized at an error.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

brg

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